



US Army Corps  
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Engineer Research and  
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# Conditioning Monitoring & Predictive Maintenance for Infrastructure

<b>Description</b>	This research addresses electrical, mechanical and fatigue monitoring of lock and dam gates and associated machinery, as well as pumping station operating machinery. Data acquired from sensors will be used to monitor the fatigue loads in critical members on lock and dam gates and pumping machinery, correlated with machinery movements and fed into a condition monitoring system to diagnose system malfunctions, optimize operational procedures and assist in predictive maintenance.
<b>Issue</b>	Unscheduled maintenance can be disruptive and costly. Lock and dam gates and pumping station machinery are subject to failure due to excessive loads and wear of components, resulting in excessive costs and downtime.
<b>Users</b>	Corps' District engineers can use the results this research to provide locks, dams, and pumping stations with the capability for early location of deficiencies that can be corrected to prevent failure.
<b>Products</b>	Guidelines for condition monitoring of both structural components and operating machinery for locks, dams, and pumping stations; Vibrating Wire Strain Gages on gate anchorage; and guidelines for predictive maintenance
<b>Benefits</b>	Conditioning monitoring and predictive maintenance provide real-time indication of overall electrical, mechanical and structural condition, reduce the likelihood of failure or fracture of critical components, reduce maintenance cost and personnel requirements, and improve safety and reliability of lock gates, dam gates and pumping station machinery.
<b>Corps Program</b>	Navigation Systems Research Program, Mr. James Clausner, Program Manager.
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<b>Partners</b>	New Orleans District; St. Louis District; Construction Engineering Research Laboratory; Coastal and Hydraulics Laboratory Coastal and Hydraulics Laboratory.

